

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus comprising:
a substrate; and
a coating composition on a surface of the substrate comprising a plurality of deposited layers,
at least one of the plurality of deposited layers comprising a colloid of a plurality of dispersed crystalline metal compound particles and a condensation product of an organosilane;
and
at least one of the plurality of layers comprises a radiation curable material.
2. (Original) The apparatus of claim 1, wherein the plurality of deposited layers comprises at least two layers and, relative to one another, a first layer has a high refractive index and a second layer has a low refractive index.
3. (Original) The apparatus of claim 2, wherein the second layer is formed on the first layer and the first layer has a thickness on the order of 50 to 150 nanometers and comprises a refractive index on the order of 1.45 to 1.75.
4. (Previously Presented) The apparatus of claim 2, wherein the second layer is formed on the first layer and the first layer comprises the crystalline metal compound.
5. (Original) The apparatus of claim 2, wherein the second layer is formed on the first layer and the second layer has a thickness on the order of 50 to 150 nanometers and comprises a refractive index of the top layer is 1.30 to 1.50.
6. (Original) The apparatus of claim 5, wherein the second layer comprises a silicon compound.
7. (Previously Presented) The apparatus of claim 5, wherein the second layer comprises a radiation-curable material.

8. (Original) The apparatus of claim 7, wherein the second layer comprises one of an ultraviolet and an electron beam-curable material.
9. (Previously Presented) The apparatus of claim 6, wherein the second layer comprises at least one multi-functional monomer.
10. (Previously Presented) The apparatus of claim 9, wherein the multi-functional monomer comprises an acrylate monomer having an acrylic functionality of three or greater.
11. (Previously Presented) The apparatus of claim 9, wherein the second layer further comprises a condensation product of an alkoxysilane having a fluoroalkyl group.
12. (Original) The apparatus of claim 1, wherein the coating composition comprises three layers, wherein, relative to one another, a first layer comprises a medium refractive index, a second layer comprises a high refractive index, and a third layer comprises a low refractive index.
13. (Original) The apparatus of claim 12, wherein the three layers are stacked one over the other, first layer to third layer, and the thickness of the first layer is about 50 to 150 nanometers and the refractive index of the first layer is about 1.45 to 1.55.
14. (Original) The apparatus of claim 13, wherein the first layer comprises a crystalline metal compound.
15. (Original) The apparatus of claim 13, wherein the thickness of the second layer is about 50 to 200 nanometers and the refractive index of the second layer is about 1.45 to 1.75.
16. (Previously Presented) The apparatus of claim 15, wherein the second layer comprises the crystalline metal compound.
17. (Original) The apparatus of claim 13, wherein the thickness of the third layer is 50 to 150 nanometers and the refractive index of the third layer is 1.30 to 1.50.

18. (Previously Presented) The apparatus of claim 17, wherein the third layer comprises the radiation-curable layer, and wherein the third layer includes at least one acrylate monomer.

19. (Original) The apparatus of claim 18, wherein the third layer comprises at least one (meth)acrylate monomer and a silicon compound.

20. (Original) The apparatus of claim 19, wherein the third layer has a property selected to be one of ultraviolet and electron beam-curable.

21. (Previously Presented) The apparatus of claim 17, wherein the third layer comprises:
at least one (meth)acrylate functional monomers having an acrylic functionality of three or greater;
an initiator; and
a polycondensed silicon compound of the mixture of tetraalkoxysilane and a trialkoxysilane or dialkoxysilane having a fluoroalkyl group.

22. (Withdrawn) A method comprising:
depositing a plurality of layers on a substrate, at least one of which comprises a radiation-curable material; and
curing at least one deposited layer by exposure to a radiation source.

23. (Withdrawn) The method of claim 22, wherein the plurality of layers comprises at least two layers, and relative to one another, a first layer has a high refractive index and a second layer has a low refractive index.

24. (Withdrawn) The method of claim 22, wherein the plurality of layers comprises at least three layers, and relative to one another, a first layer has a medium refractive index, a second layer has a high refractive index and a third layer has a low refractive index.

25. (Withdrawn) The method of claim 22, wherein the radiation source comprises an electron beam.

26. (Withdrawn) The method of claim 22, wherein the radiation source comprises ultraviolet light.
27. (Withdrawn) The method of claim 22, wherein depositing a plurality of layers on a substrate comprises one of a spinning process, a dipping process, and a rolling process.
28. (Withdrawn) The method of claim 22, wherein depositing a plurality of layers comprises depositing a radiation-curable layer of at least one acrylic monomer.
29. (Withdrawn) The method of claim 28, wherein the radiation-curable layer comprises at least one (meth)acrylate monomer and a silicon compound.
30. (Currently Amended) An apparatus comprising:
a substrate including a transparent material;
an anti-reflective coating composition on a surface of the substrate, the coating composition comprising a plurality of deposited layers;
a first deposited layer of the plurality over the substrate, the first layer comprising a colloid including dispersed particles of a crystalline metal compound and a condensation product of an organosilane; and
a second deposited layer of the plurality over the first layer, the second layer having a different refractive index, wherein of the first deposited layer and the second deposited layer than a refractive index of the first layer and the second deposited layer comprises a radiation-curable layer.
31. (Previously Presented) The apparatus of claim 30, wherein the radiation-curable material comprises polymerized acrylate monomers having acrylic functionalities of three or greater.
32. (Previously Presented) The apparatus of claim 30, wherein the second deposited layer comprises a condensation product of an alkoxysilane having a fluoroalkyl group.